

## Patent Claims

## 1. PTC component

5           - with a basic body (8) comprising stacked ceramic layers (4) that are separated from one another by electrode layers (5), wherein the ceramic layers (4) contain a ceramic material that has a positive temperature coefficient in at least one part of the R/T characteristic line,

          - wherein the electrode layers (5) are contacted alternately with collector  
10 electrodes (6) attached to the sides of the component,

          - with a volume V and an ohmic resistance R, measured between the collector electrodes at a temperature of between 0° C and 40° C,

          wherein:  $V \bullet R < 600 \Omega \bullet \text{mm}^3$

## 15           2. Component according to claim 1,

          which is manufactured by sintering ceramic green sheets (1) and electrode layers (5) together in one operation.

## 3. Component according to one of claims 1 or 2,

20           wherein the electrode layers (5) contain tungsten.

## 4. Component according to one of claims 1 through 3,

wherein the electrode layers (5) contain tungsten carbide.

5. Component according to one of claims 1 through 4,  
wherein the electrode layers contain WO.

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6. Component according to one of claims 1 through 5,  
wherein the electrode layers contain a tungsten compound where the tungsten has  
a valence less than +6.

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7. Method for the manufacture of a PTC component according to claim 1 with the  
following steps:

a) production of a layer stack from ceramic green sheets (1) with interposed  
electrode layers (5);

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b) binder removal and sintering of a layer stack in an atmosphere with a lowered  
oxygen content in relation to air.

8. Method according to claim 7,  
wherein the oxygen content of the atmosphere is less than 8 vol. %.

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9. Method according to one of claims 7 or 8,  
wherein binder removal is performed at a temperature of  $< 600^{\circ}\text{C}$ .

10. Method according to one of claims 7 through 9,  
wherein sintering is performed in a temperature interval of between 1000° C and  
1200° C.

5 11. Method according to one of claims 7 through 10,  
wherein the temperature of the layer stack after binder removal is kept at a value  
corresponding at least to the maximum debinding temperature at least until sintering has  
been completed.

10 12. Method according to one of claims 7 through 11,  
wherein binder removal is performed with an oxygen content of between 0.5 And <  
8 vol. %.

13. Method according to one of claims 7 through 12,  
15 wherein sintering is performed with an oxygen content corresponding to the  
oxygen content present during binder removal.

14. Method according to one of claims 7 through 13,  
wherein sintering is performed with an oxygen content of between 0.1 and 5 vol.  
20 %.

15. Method according to one of claims 7 through 14,

wherein the oxygen content is further decreased after binder removal.

16. Method according to one of claims 7 through 15,

wherein the oxygen content is continuously lowered after binder removal.

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17. Method according to one of claims 7 through 15,

wherein after binder removal, the oxygen content is decreased with increasing temperature.

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18. Method according to one of claims 7 through 17,

wherein the oxygen content is again increased after a maximum sintering temperature is exceeded.

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19. Use of a component according to one of claims 1 through 6 as SMD-capable PTC resistor element.